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COMMENTARY

Youth Cannabis use and Legalization in Canada – Reconsidering the Fears, Myths and Facts Three Years In

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Abstract

Canada legalized and regulated non-medical cannabis in October 2018, and in the lead up to this policy change much debate was generated around the Federal Government's stated objective of "keeping cannabis out of the hands of children and youth". As Canada moved through the process of passing Bill C-45 (the Cannabis Act), a contentious issue was whether the 'public health approach' to legalization with strict regulation guiding Federal policy would protect young people from accessing cannabis and from the potential harms of use. Now that we are several years post-legalization of cannabis, in this brief commentary we reconsider the arguments made about the potential consequences of legalization for youth, centered on three key concerns: that prevalence would significantly increase, that there would be greater incidence of harms to youth brain development, and that there would be increased presentations of severe mental illnesses associated with cannabis use. We also consider how focusing narrowly on clinical outcomes has neglected the association between criminalization and social inequities, where the burdens are disproportionate for marginalized and racialized youth.

Key Words: *cannabis, youth, legalization, policy, public health, mental health, Canada*

Résumé

Le Canada a légalisé et réglementé le cannabis à des fins non médicales en octobre 2018, et préalablement à ce changement de politique, de nombreux débats ont vu le jour au sujet de l'objectif déclaré du gouvernement fédéral « d'empêcher que le cannabis ne se retrouve entre les mains de nos enfants et des jeunes ». Comme le Canada traversait le processus d'adoption du projet de loi C-45 (Loi sur le cannabis), une question litigieuse se posait à savoir si l'approche de la santé publique à la légalisation avec un règlement strict guidant la politique fédérale protégerait les jeunes gens contre l'accès au cannabis et contre les méfaits potentiels de l'usage. Aujourd'hui, plusieurs années après la légalisation du cannabis, dans le présent bref commentaire, nous réexaminons les arguments avancés sur les conséquences potentielles de la légalisation pour les jeunes, axés sur trois préoccupations principales : que la prévalence augmenterait significativement, qu'il y aurait une incidence accrue des dommages au développement cérébral des jeunes, et qu'il y aurait plus de présentations de maladies mentales graves associées à l'usage du cannabis. Nous examinons également comment l'accent étroit mis sur les résultats cliniques a négligé l'association entre la criminalisation et les inégalités sociales, qui sont source de charges disproportionnées pour les jeunes marginalisés et racialisés.

Mots clés: *cannabis, jeunes, légalisation, politique, santé publique, santé mentale, Canada*

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In the lead up to legalization in Canada and since, protecting youth from potential harms associated with cannabis use has been frequently mobilized as a rationale against legalizing. Most prominently, in 2017 the Canadian Medical Association Journal ran the editorial, "Cannabis legislation fails to protect Canada's youth," concluding that "If Parliament truly cares about the public health and safety of Canadians, especially our youth, this bill will not pass" (Kelsall 2017, E738). Among the major concerns expressed by critics of the policy change and proposed legal framework (for example, in position statements, published commentaries and media discussions) were three central issues: that use by youth would increase, that any use before age 25, but specifically pre-adult age, causes irreversible harm to developing brains, and that adolescent use would be associated with increased incidence of severe mental illness (see for instance critiques and debates summarized by: Fischer, Rehm & Crépault 2016; Kelsall 2017; Grant & Bélanger 2017). The evidence in support of such claims needs to be carefully considered given what we know now, closing in on three years into legalization, and the areas where findings are still developing or inconclusive.

For those unfamiliar with the policy context, it is important to note that the domains of cannabis legalization regulation pertaining to youth are enacted at multiple levels of government. Federally, Bill C-45, the act to legalize cannabis, set the minimum age of access at 18 and most provinces set their minimum age at 18 or 19 to align with existing alcohol and tobacco access laws. The notable exception was Quebec, where the age was initially 18 and then raised to 21 in 2019, despite criticism that this regressive policy would likely not be effective for deterring use and would only continue to drive youth to the illicit market (Poulos 2019; Lévesque & Benoit 2020). Municipal authorities are responsible for regulating retail licences and setting out protections such as proximity of cannabis stores to schools and childcare centers, as well as bylaws restricting public consumption of cannabis in shared public spaces – including outdoors in parks, beaches and areas where children and youth are likely to be present. All levels of government have a mandate to ensure public awareness of the laws and bylaws covering sales and use, and to provide education on the potential health risks and guidelines for safer cannabis use to populations including youth (Watson et al 2019).

Regarding prevalence, there appears to have been no marked increase in cannabis use by youth in Canada yet. For 2018-19, results from the Canadian Student Tobacco Alcohol and Drug Use Survey show that, "18% of students in grades seven to 12 (approximately 374,000) reported using cannabis in the year preceding the survey, unchanged from 2016-17" (Health Canada, 2019). Additionally, past year use was unchanged in the post legalization year for all grades but increased slightly for younger youth in grades seven to nine, from 6% in 2016-17 to 7% in 2018-2019 (Health Canada, 2019). The most recent data from Canada's National Cannabis Survey show that while younger people are still more likely to use cannabis, the population groups with reported increases in daily use since legalization has been middle-age and older-age people (i.e., age 45-64 and age 65 and up) (Statistics Canada, 2020). While data in the first few years post-legalization should still be considered preliminary, a recent study of cannabis use among a Canadian cohort of high school aged youth found no statistically significant difference in the odds of reporting current use (past 12 months) when use was assessed between 2016-2019 in a pre-/post-legalization experimental design (Zuckerman et al 2021). The early findings from Canada are in alignment with studies of the impact of cannabis policy change on youth prevalence in other countries. A systematic review and meta-analysis (Melchior et al., 2019) assessing the effects of cannabis liberalization (i.e., countries where cannabis possession was decriminalized or legalized for medical or non-medical use) for those under age 25, reviewed 41 studies and found that overall, liberalization of cannabis control appeared to "have little effect on actual patterns of use among young people" (2019, 11), when use was assessed at either the 30-day or 12-month marks. Melchior et al also identified identified eight studies on the legalization of non-medical cannabis and through calculating standardized effect sizes across all studies, determined that this policy change was associated with a small increase in levels of youth use (a standardised mean difference of 0.03, 95% CI −0.01 to 0.07). By comparison, Uruguay, which was the first country to legalize non-medical cannabis in 2013 has also not seen increased youth use (Laquer et al., 2020), although the model of legalization there is state-owned production and supply, compared to Canada's commercial cannabis industry.

While these population-level trends may change over time as the Canadian cannabis industry further scales up and extends its reach, the strict regulations that Canada imposed on marketing, branding and promotions to minors in the federal policy framework, bolstered by provincial and municipal regulations on retail access and public consumption, may be protective if properly implemented and enforced (Watson & Erickson 2019). However, that survey findings show use among youth has remained prevalent may suggest that the Cannabis Act is failing, at least initially, to meet its objective to "restrict youth access to cannabis" (Health Canada, 2018) by replacing the illicit market (Zuckerman et al 2021). While research on specifically how minors and legal age youth are accessing cannabis post-legalization is

just starting to emerge, results from the 2019 National Cannabis Survey show that 52% of respondents of any age who have used cannabis in the past 12 months have accessed at least some of it through a legal source, compared to 23% prior to legalization (i.e. legal medical access) (Statistics Canada, 2020). Yet, procurement from illegal sources remains almost common (42%); thus, to date illegal cannabis supply and sourcing remain generally common and resilient.

On the potential linkages between adolescent cannabis use and brain harms the science is also rapidly developing, but far from settled. For example, in addition to claiming that legalization leads to higher prevalence of youth use, critics of legalization often cite neuroscientific evidence that any use before age 25 harms the developing brain. As it has been translated to the general public, this messaging potentially overstates evidence of risk, by suggesting that for adolescents there is 'no safe use' and that all, and even casual or sporadic cannabis use, will result in brain harm so use must be avoided, and that all neuro-cognitive risks are irreversible. While those concerned about legal access for those under age 25 tend to cite only those studies involving high-intensity and "high-risk" cannabis users in making their case, what is neglected are the findings that adverse impacts on brain health are similar, if not worse, for youth alcohol exposure (Hemmens et al 2013; Ewing et al 2014). However, as per recent reviews, the evidence on 'age-of-onset' as an independent risk for neurocognitive and neuropsychological impairments or harms associated with cannabis use is becoming less consistent. For example, findings from key studies from which the cautions against adolescent use are drawn, have been selectively based on samples of heavy/chronic (i.e., high-risk) adolescent use only, and multiple reviews are now showing no difference by age, or that young users employ distinct compensatory skills for possible neuro-cognitive deficits (e.g. Meier et al., 2019; Chye et al., 2020; Hoch et al., 2020;). In addition, it has been shown that possible cannabis-related neurocognitive deficits among young users may diminish after relatively short periods of non-exposure (Scott et al., 2018). It is now becoming clearer that patterns, frequency and potency of use matter much more for severe outcomes from adolescent use, and that more integrated scientific measures of the 'magnitude' and impacts of use are required (Sagar & Gruber, 2018). Going forward, more precision about the types of use that may constitute elevated risk for neuro-cognitive harms will allow for improvements in both clinical interventions and public health messaging, beyond the abstinence focused approaches that predominated when cannabis was illegal.

The relationship between cannabis use and adverse mental health outcomes – and particularly psychotic illness - remains a prominent concern to psychiatry. While a clear and robust *associative* relationship linking the two has emerged, the scientific evidence shows that this association is multifactorial/-directional and that the role of cannabis use as a sole or primary causal mechanism for the development of psychosis is not supported in the current literature (Hamilton & Monaghan, 2019; Hasan et al 2020). Moreover, while psychotic episodes are severe and traumatic events for those who experience them, from a public health perspective, the disease burden from cannabis-impaired driving/injuries or cannabis use disorder arising from cannabis use has been estimated to be substantially greater (Curran et al., 2016; Fischer et al., 2015; Imtiaz et al., 2016). In the context of legalization there has been widespread dissemination of warnings about cannabis use among those who have a family history or other factors that mean they may be at risk for developing psychosis through public health tools such as *Canada's Lower Risk Cannabis Use Guidelines* (Fischer et al., 2017) and education efforts developed for professionals (Bélanger et al 2020) and youth and families (Early Psychosis Ontario Invention Network, 2018; Schizophrenia Society of Canada, 2020). Still, there remains a need for targeted approaches meaningfully tailored to reach vulnerable people and populations at risk, but also to concretely guide individuals experiencing psychotic symptoms and involved in cannabis use how to best manage risk and reduce harms (Shoeler et al, 2017; Coronado et al 2020). Moreover, that the associations between cannabis use and mental illness were present prior to legalization, should compel clinicians and researchers to understand whether or not youth and other users with or at risk for mental illness are accessing illicit or legal cannabis supplies, and the differential risks (i.e., known potency and content) associated with these markets and products.

While prominent emphasis within discussions on the risks and benefits of legalization has often centred on associations between cannabis and psychosis, there are other important aspects of cannabis and youth mental health where further study is needed. Comparatively less is known about how adolescents and young adult use may reflect therapeutic motives or 'self-medication' for addressing mental health symptoms among a population that might not otherwise present for treatment. Recent findings from a survey of university-age young adults found that among the 11% who reported medical use of cannabis, most were using it for relief from a mental health condition such as anxiety or depression (Smith et al 2019). Additionally, substitution effects, where cannabis use replaces another substance have received attention in the context of legalization, but studies

from other jurisdictions have been inconclusive or mixed regarding evidence of benefit for alcohol and tobacco (Veligati et al 2020) or opioid use (Hall et al 2018).

There are also population-level benefits of legalizing cannabis that may not be immediately apparent to clinical psychiatry but are important for improving general health/wellbeing and social equity, especially among marginalized populations of youth users. Canada's Cannabis Act allows for provinces and territories to decriminalize possession under 5 grams for those aged 12-18, and to treat youth possession as a ticketable offence, like alcohol. In theory this should protect youth from arrest, charges, and the perilous consequences associated with police interactions. Regrettably, to date the arrangements for under-age possession have not been so clear-cut at the local level and still do not reliably protect young people from punitive interventions and subsequent legal or other problems (Fischer et al., 2020). Evidence from the United States has shown that youth arrest rates after legalization have persisted (Plunck et al., 2019), or even increased for marginalized/minority youth sub-groups. Firth et al. (2020) show that following legalization in Oregon in 2015, cannabis-related offences increased substantially for youth (32% for youth using cannabis and 28% for those who did not), and that some pre-existing racial disparities mostly persisted. Black youth, for whom arrest rates were already double the rate for white youth saw some decrease, but rates for American Indian/Alaska Native youth were unaffected following state legalization. Comparable 'race-based' data are not available in Canada, but are urgently required given the documented presence of entrenched racial bias, targeting and surveillance of Black and Indigenous youth in Canadian policing and criminal justice systems (Maynard 2017; Samuels-Wortley 2021). Therefore, decriminalizing cannabis possession by youth is an important component of equity in cannabis law reform, considering evidence showing that Indigenous and Black people in Canada have been over-represented among those arrested and charged for cannabis possession pre-legalization (Owusu-Bempah & Luscombe, 2020). Whether such inequities have abated or remain entrenched in the context of legalization, and what the impacts have been for youth and young adults needs systematic study to ensure that the laws in Canada are being evenly applied.

Finally, while clinicians may be apprehensive about the effects of the policy change to legalization for their patient populations and the care they provide 'downstream,' we should not neglect how essential determinants of harmful patterns and consequences of substance use are linked to 'upstream' influences and to young people's social environments – in particular neighborhood and school contexts (Huang et al 2020). For example, a recent cross-sectional study of adolescents in four Canadian provinces demonstrated that factors including race/ethnicity and gender were strongly associated with cannabis use in the context of polysubstance use, a marker of problematic use, but that school connectedness and access to supports were protective influences (Zuckerman et al., 2020). With the knowledge that "vulnerable youth, who are most prone to high-risk substance use behaviour, are those most hindered by structural adversity" (Zuckerman et al., 2020, p.7), efforts to mitigate potential harms must integrate individual-level risk for addiction and mental illness with the structural contexts that shape young people's life choices and chances far beyond their substance use behaviours (Mowbray et al., 2003; Cambron et al., 2019).

In the lead up to legalization, professional associations including the Canadian Psychiatric Association, the Canadian Medical Association, and the Canadian Pediatric Society suggested that legalization posed a threat to public health, advocated for the legal age for cannabis use to be set at a minimum age of 21 or 25, or that Canada should not legalize at all because it would place youth at greater risk of harm. With such categorical fears now shown to be largely unfounded, this should provide the basis to move forward on more nuanced grounds. As we have already noted, targeted intervention approaches are required and should be implemented for those individuals most at risk from cannabis use-related harm (e.g., users with key risk behaviors or co-morbid substance use/mental health problems) while recognizing that on the balance, cannabis legalization – especially when considering the severe adverse social impacts of criminalization, and especially for youth – continues to offer the potential to better protect, and achieve consequential net benefits to public health and welfare of cannabis users and society at large. That some who are critical of legalization continue to view and frame it as a threat to youth, despite little substantive evidence to support this claim especially in direct comparison with criminalization, suggests that cannabis use remains a contentious issue of concern, despite the shifts in its legal status recently completed.

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Conflicts of Interest

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